



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(54) Title:</b> SYSTEM AND METHOD FOR DISTRIBUTING ADVERTISING AND GATHERING INFORMATION IN A WIRELESS COMMUNICATION NETWORK		
<b>(57) Abstract</b>  <p>A system and method for inserting and distributing commercial advertising to wireless phone subscribers. The system and method also allows for information gathering from participating subscribers. A subscriber enters a user profile either when initially signing up for service or through an interactive menu on the phone handset (330). Through phone registration messages transmitted as overhead messages within the wireless network (320) the network (320) is roughly able to determine the location of the phone (330). The system transmits advertising messages to the user at call origination based upon the user profile and cell location. The system may use the subscriber location to decide to transmit messages to the user phone that will launch a browser (336) like application within the phone (330). The browser (336) would then display textual or graphical advertisements on the handset display. Additionally, the system could initiate browser pop-up polling queries in which the user could offer responses. The phone (330) would use packetized data transmission to transmit the responses back to the base station (320). The system would then accumulate and process the various user responses. The system could also use location information to selectively transmit electronic coupon offers to local subscribers.</p> <div data-bbox="1019 1165 1339 1900" style="border: 1px solid black; padding: 5px;"> <pre> graph TD     subgraph 310 [SPAR System Servers]         312[Customer Interface (Web) Server 312]         314[Admin./Screening/Billing/Statistics 314]         316[SPAR Media Server 316]         318[SPAR/CCLN Interface 318]         312 --&gt; 314         314 --&gt; 316         316 --&gt; 318     end     subgraph 320 [CDMA Infrastructure/Wireless Infrastructure]         322[CCLN 322]     end     subgraph 330 [CDMA Subscriber Handset]         332[Phone Operating system 332]         334[Buffer Memory 334]         336[Browser 336]     end     318 --&gt; 322     322 --&gt; 332     332 --&gt; 334     332 --&gt; 336       </pre> </div>		

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# SYSTEM AND METHOD FOR DISTRIBUTING ADVERTISING AND GATHERING INFORMATION IN A WIRELESS COMMUNICATION NETWORK

## 5 BACKGROUND OF THE INVENTION

### I. Field of the Invention

10 The present invention relates to wireless communication. More particularly, the present invention relates to a novel and improved system and method of distributing advertising and gathering user information within a wireless communication network.

### 15 II. Description of the Related Art

In a wireless communication network such as a wireless mobile phone network many users simultaneously share common resources. A wireless phone network connects to the Public Switched Telephone Network (PSTN) through a Base Station Controller (BSC). The BSC, in turn, connects to several  
20 Base Transceiver Systems (BTS). The individual BTSs define individual cells within the wireless phone network. Each of the BTSs transmits forward channel messages to the Subscriber Units within the cell. Additionally, the BTS serves to receive, demodulate, and relay to the BSC the Subscriber Unit reverse channel transmissions. Subscriber Units maintain continuous communications  
25 when travelling across several cells by utilizing handoffs from cell to cell. Some cells may be partitioned into multiple sectors to minimize adjacent cell interference and to increase user capacity. The Subscriber Unit effectively treats each sector of a multi-sectored cell as a distinct cell.

In a Code Division Multiple Access (CDMA) wireless phone system a  
30 Subscriber Unit is able to receive and transmit both voice and data messages. The Subscriber Unit is able to commence voice and data transmissions once it has registered within the network. Registration within the network occurs as a minimum each time the Subscriber Unit is turned on. The Subscriber Unit maintains registration with base stations with which it is currently in  
35 communication. The Subscriber Unit may also maintain registration with base stations, outside the current cell, to which the Subscriber Unit previously sent registration messages. The number of base stations in which the Subscriber Unit is registered depends on the type of registration system the network is capable of supporting.

A CDMA Subscriber Unit acquires and registers within a base station's coverage area through a series of steps. The Subscriber Unit first receives a Pilot signal. The Subscriber Unit correlates to the Pilot channel transmitted by each base station in order to align the Subscriber Unit timing with the Pilot signal. Once the Subscriber Unit has acquired and has correlated the internal timing to the Pilot signal the Subscriber Unit further refines its timing by receiving the Sync Channel and processing the Sync Channel Message. Like the Pilot signal, each base station continuously transmits a Sync Channel Message. The Sync Channel Message contains information such as the System Identification Number (SID), system time, and the paging rate. Once the Sync Channel Message has been processed by the Subscriber Unit the Subscriber Unit will send registration messages to the base station. CDMA Subscriber Units are able to support nine different forms of registration methods that may be individually enabled. The available options include Power-Up registration, Timer Based registration, Distance Based registration, and Zone Based registration. The wireless service carriers determine which registration methods will be supported and transmit this information to the Subscriber Unit as an overhead message. The Subscriber Unit will then only utilize the registration methods supported in the system. Registration enables the wireless phone system to minimize the number of cells in which paging messages are broadcast. This in turn increases the capacity of Paging Channels in the wireless phone network.

Another benefit of registration within individual cell sites is the system's ability to make a coarse determination of the location of a Subscriber Unit. This can be accomplished by identifying the cell and sector in which the Subscriber Unit has registered. As Subscriber Units evolve, integration of Global Positioning System (GPS) or similar position determination devices into the phone may make location determination much more precise.

Once the Subscriber Unit has processed the Sync Channel Message and registered within a system, the Subscriber Unit proceeds to an Idle State where the Subscriber Unit is able to receive overhead messages, receive paging messages, transmit updated registration messages, originate calls, and receive calls.

To assist the user when making and receiving calls and when receiving messages, Subscriber Units typically include a user display. The display may provide the user Subscriber Unit status as well as provide visual feedback for user initiated operations. A display typically can show received signal strength, battery level, paging messages, dialed phone numbers, and received

phone numbers. Subscriber Units that utilize bitmapped displays can display graphics in addition to text.

While feature rich phones may entice users into choosing particular Subscriber Unit models, some users choose a service provider solely on the basis of service coverage and cost. Service providers can reduce or eliminate the user's non-recurring initial costs by subsidizing the costs of the Subscriber Unit if the user commits to a particular service plan. However, this does little to offset the recurring monthly service cost to the subscriber.

The invention described below discloses a system and method for delivering commercial advertising to Subscriber Units and for gathering information from participating users. Commercial advertising would provide the service provider alternate sources of revenue. Service plans could then be offered which discount the subscriber's recurring operating costs based upon the subscriber's tolerance to advertisements and participation in interactive media. Differing service plans based upon subscriber participation would enable lower recurring service costs and allow a greater number of users to benefit from wireless phone service.

## SUMMARY OF THE INVENTION

The present invention is a novel and improved system and method for distributing advertising to, and for gathering information from, wireless service subscribers. The objective of the invention is to provide a manner in which advertisers can distribute information to wireless service subscribers and gather information from those same subscribers. Interactive media data clients are able to gather information from wireless service subscribers through broadcast polls and questionnaires that the subscriber would answer. The advertisements or interactive media could selectively be sent to subscribers based on user profiles filled out by the subscribers or subscriber location determined by phone registration within the wireless phone network. The general term extended media is used to refer to all possible data that can be distributed using the current invention. Extended media includes advertisements as well as interactive media in the form of questionnaires and polls. The extended media may only require passive participation by the recipient, as in the case of advertisements, or may require the recipient's active participation, as in the case of user polls. Where the extended media requires only a passive subscriber, the information is only transferred in one direction, from the service provider to the subscriber. Where the extended media requires active subscriber participation, information is transferred from the service provider to

the subscriber as well as from the subscriber back to the service provider. Interactive polls or questionnaires are electronically sent to the subscriber and the completed polls or questionnaires are electronically returned to the service provider.

5 In the present invention a series of computer servers are used as the interface between the advertisers or interactive media data clients and the service providers' wireless network. The servers may all be integrated into one piece of computer hardware or they may reside in separate computers. Setting up the various servers on separate computers is preferred to a single piece of  
10 computer hardware hosting all the servers because of reliability and redundancy considerations. A customer interface computer server is used as the interface between the wireless network and advertisers or market data clients. This server interfaces to an administrative and screening computer server. Advertisements and other interactive media would be reviewed for  
15 content while on the administrative and screening server. Once the service provider approves the content of the advertisements or interactive media the relevant information on the server is formatted and transferred to a media server. The media server is used as a host for the various advertisements and interactive media approved for distribution. This server is also used as the  
20 collection point for user responses. A separate CDMA Cellular Land Network (CCLN) server is used to interface between the media server and a wireless network. The CCLN interface server works with the wireless network to determine when to distribute the advertisements or interactive media. The distribution decision can be made based on previously entered user profiles or  
25 subscriber location. Subscriber location is estimated using wireless network phone registration information.

Audio messages and graphical or text displays can be transmitted to selected subscribers upon call origination or call termination. Interactive media in the form of questionnaires or polls that run under a phone resident browser  
30 application can be sent to subscribers. Interactive media can either prompt the user as to its presence, as in a paging message, or can load into a memory buffer within the receiving phone to be accessed at a later time by the user. Subscriber replies will be transmitted back to the base station using packetized data. The subscriber replies will be received by the CCLN and compiled in the  
35 media server. Electronic coupon offers can also be distributed to subscribers. The coupons could be redeemed by displaying the electronic offer or by electronically transferring the coupon from the phone memory.

The servers track the number of instances in which audio and text or graphical advertising messages are sent to the subscriber. Also tracked would

be the number of questionnaires or polls to which the subscriber responds. A value is attached to each passive extended media message sent to the subscriber. A higher value is attached to the interactive media message that the subscriber completes and returns. This is due to the greater amount of time the subscriber is required to invest as well as the greater value in the information retrieved from the subscriber in the case of interactive media. The number of advertisements and responses would be totaled to establish a discounted service rate. In this manner the subscriber's interactions would directly bear on the discount received. The ability to receive wireless phone service at a discounted rate encourages increased consumption of wireless phones and services.

### BRIEF DESCRIPTION OF THE DRAWINGS

The features, objects, and advantages of the present invention will become more apparent from the detailed description set forth below when taken in conjunction with the drawings in which like reference characters identify correspondingly throughout and wherein:

FIG. 1 is a block diagram of a wireless communication system integrating the present invention;

FIG. 2 is a block diagram of the interface between the various users of the system; and

FIG. 3 is a block diagram of the hardware interfaces within the system.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is a system and method for advertisement distribution and information gathering within a wireless telephone system. Referring to FIG. 1, a wireless telephone system integrating the present invention is shown. A CDMA wireless phone system is described below. However, one of ordinary skill in the art will immediately realize that the invention is capable of integration into wireless phone systems utilizing other modulation schemes.

A Public Switched Telephone Network (PSTN) 110 connects to the wireless network through the Base Station Controller (BSC) 120. The BSC 120 converts the land line voice signals received from the PSTN 110 into a format for use by the subsequent transmission stages. In a CDMA digital wireless communication system the BSC 120 converts the land line voice signals into

vocoded frames. The BSC 120 also receives vocoded frames demodulated from the reverse link transmissions 151 and converts them for use by the PSTN 110. In addition to converting the voice signals to and from the PSTN 110 the BSC 120 handles billing 126, switching 124, and system features such as paging 128.

5 In the present invention the advertising and information gathering feature 122 is also integrated into the BSC 120. The advertising and information gathering feature 122 utilizes functions already integrated into the BSC 120. The BSC 120 holds information relating to subscriber location based upon phone registration. The BSC 120 also controls call origination and termination. These

10 functions are used by the present invention to make decisions relating to the transmission of advertising or interactive media.

The BSC 120 connects to many Base Transceiver Systems (BTS) 130. Each BTS 130 is able to establish numerous RF communication links 150 - 151 with Subscriber Units or phones 140. The BTS 130 converts the vocoded frames

15 received from the BSC 120 into the CDMA modulated forward link signal 150. The BTS 130 transmits the forward link RF signals 150 to the subscribers and receives the reverse link RF transmissions 151 generated by the Subscriber Units 140. The BTS 130 demodulates the received reverse link RF transmissions 151 and routes the demodulated vocoded frames to the BSC 120. The

20 Subscriber Unit 140 is the final piece of hardware in the wireless phone system. The Subscriber Unit 140 receives the user's voice signals and encodes them to produce the reverse link CDMA modulated RF signals 151 that are transmitted to the BTS 130. Additionally, the Subscriber Unit 140 receives the forward link RF transmission 150 from the BTS 130 and demodulates it. If the forward link

25 RF transmission 150 is a voice message it is demodulated to an audio signal that is sent to a speaker (not shown) within the Subscriber Unit 140. Received paging messages will be shown on a display (not shown) integrated within the Subscriber Unit 140. Advanced Subscriber Units 140 are able to receive packetized data and instructions that will run under software applications

30 embedded within the phone.

Referring to FIG. 2, subscribers 250 are exposed to advertisements and interactive media through their Subscriber Units 140. Since most subscribers 250 would be adverse to standard cold-call telemarketing techniques, the present invention distributes extended media, in the form of advertisements

35 and interactive media, in a minimally intrusive manner. Subscribers 250 have the option of signing up for service plans that allow extended media. The service provider 230 could provide for reduced cost incentives for those subscribers 250 willing to tolerate advertisements and interactive media. Billing discounts could be based on the quantity and type of media exposed to the



subscriber 250. Questionnaires and polls the subscriber 250 fills out electronically and electronically returns would generate a greater billing discount due to the increased requirement in subscriber time and activity. However, the greater discounts associated with questionnaires and other  
5 interactive media would only be available to those subscribers 250 that own a phone with the sufficient level of complexity to allow interactive media. These phones would need to have displays and browser type software embedded in the phone memory. This minimal browser software, such as software using  
10 Wireless Applications Protocol (WAP) or software developed by UNWIRED PLANET, already exists and has already been implemented within wireless phones. Wireless phone manufacturer also have developed limited browsers and integrated them within phones. Examples of manufacturer produced browser software include the pdQ browser implemented in the QUALCOMM  
15 pdQ phone.

Once the subscriber 250 signs up for an extended media service plan, the subscriber 250 would fill out a user profile. The user profile may be filled out in hard copy at the time the service plan is initiated or as an alternative, the subscriber 250 may fill out the user profile from handset menus generated  
20 using a browser application embedded in the phone software. The user profile would then be sent to the service provider 230 as a data transmission. Submitting the user profile electronically is preferred because the information can be automatically extracted in the service provider's computer. Additionally, when in electronic format, the subscriber 250 always has the opportunity to conveniently modify and resubmit the user profile. The user  
25 profile serves multiple purposes. The demographic information is used by the service provider 230 and extended media clients 210 in deciding whether to send specific items of extended media to particular subscribers 250. The user profiles allow advertisers to target specific demographic groups with a certainty not available in any other form of mass media marketing. The  
30 subscriber 250 can adjust the user profiles to scale their level of media exposure to their tolerance level. The subscriber 250 could set lock out periods when extended media is not permissible. This allows a subscriber 250 that uses a phone for both business and personal purposes to block extended media during business hours. However, a subscriber 250 that is most interested in a  
35 discounted billing rate and that has a high tolerance for extended media messages could choose to allow all extended media messages. Using the electronic user profile format, subscribers 250 are able to update their profiles as their tolerance changes.

Referring again to FIG. 2 the service provider 230 through its advertising agency 232 sells message distribution to advertising and marketing agencies 220. A Service Provider Alternative Revenue (SPAR) agency 232 can be used to help encourage use of the services. The revenue the service provider 230  
5 receives from the clients is used to subsidize the service rate of the subscribers 250 who receive the extended media. The service provider 230 is able to sell a variety of extended media to suit client needs. The two main types of extended media are advertising services and market data services.

The service provider 230 can distribute advertisements to the subscribers  
10 250 either in the form of audio advertisements broadcast to the phone or visual advertisements shown on the phone display. Audio advertisements can be distributed to subscribers 250 at call origination, call termination, or from phone buffer memory as in the case of passive advertisements. Call origination advertisements can be distributed by modifying the normal call origination  
15 routine. When the BSC detects a subscriber call origination attempt a short advertisement is transmitted to the subscriber 250 prior to connecting the call. Once the advertisement has completed the BSC will connect the call, the ringer will sound and the call proceeds as a normal wireless phone call. Alternatively, the advertisement can continue while the ringer is sounding, with the ringer  
20 tone muted to a volume level lower than that of the advertisement. Once the call is answered, the ringer tone and the advertisement cease. In this manner an advertisement is distributed to a subscriber 250 during a time period when the subscriber's attention is captive. During the time frame after the subscriber 250 has dialed the number, but before the called party has answered, the  
25 subscriber's attention is focused on the audio output of the phone in anticipation of the called party's answer. Although perhaps not as effective, advertisements can be distributed when the BSC detects a call termination. Advertisement insertion on call termination is not limited to calls that the subscriber 250 initiates. However, a subscriber's attention is not nearly as  
30 captive as in the case of call origination advertisements.

Visual advertisements can be broadcast to subscribers 250 in conjunction with audio advertisements or independent of audio advertisements. Phones with text only displays would be restricted to text based advertisements showing price, driving instructions, etc. However, phones utilizing bitmapped  
35 displays would be able to display graphics in addition to text.

In addition to formatting an advertisement as an audio signal or visual display the advertiser 210 chooses the mode for targeting recipients. The various modes are not necessarily exclusive of each other but may be combined.

In a passive advertising mode advertisements are sent to the subscriber 250 and stored in a memory buffer 142 within the phone 140. The subscriber 250 is then able to scroll through archived advertisements using the phone display and keypad strokes. The subscriber 250 could choose visual  
5 advertisements to display or could choose audio advertisements to play back. Advertisements can be cleared from the memory buffer as they are accessed or may remain in memory until overwritten by newer advertisements.

General audience mode does not attempt to distinguish between subscribers 250. Advertisers 210 could choose to have their advertisements  
10 active within a certain time window and have the advertisements distributed to all active subscribers 250 during that time frame. In the case of a call origination audio advertisement, all subscribers 250 on extended media service plans placing a call within the advertising window would receive the advertisement. Where multiple advertisers 210 activate general audience  
15 advertisements during the same or overlapping time frames the service providers' system distributes the advertisements using a sequential or random algorithm.

Demographically targeted mode allows advertisements to be sent to particular subscribers 250 based upon previously entered user profiles or  
20 subscriber replies sent in response to market data polls. The advertising system in the service provider network 240 matches advertisement demographic target information with the demographics retrieved from user profiles to determine whether a particular subscriber 250 should receive a given advertisement. This allows the advertiser 210 to choose the scope of the demographic target. A  
25 narrow scope allows the advertiser 210 to target intended consumers with specificity at a cost of a decrease in the number of potential consumers exposed.

Push mode notification is a form of demographic targeting in which the subscriber 250 has increased control. A subscriber 250 would choose to participate in push mode advertisements. The subscriber 250 would indicate an  
30 interest in obtaining information relating to certain events. When those events occur the subscriber 250 would automatically be sent the information. As an example a subscriber 250 could reply to a poll and request information whenever promotional sales occur at particular department stores. Prior to those promotional sales the subscriber 250 would be notified of their occurrence  
35 through a push advertisement. Although conventional audio and visual means could be used to transmit the advertisement the subscriber 250 could also be called directly and played the advertisement. Push mode notification would be one condition in which a direct call advertisement would likely not be objectionable to the subscriber 250 since they have specifically requested the

information. Push mode notification could also be used in non-advertisement instances such as to notify a subscriber 250 when requested standby seating airline tickets are available.

Position targeted mode utilizes the position information available from the service provider network 240 to make advertisement decisions. Position determination can be made using wireless phone registration information or tracking of wireless phone handoffs. A wireless phone handoff occurs when a phone moves from one cell coverage area to another and the BTS handling the call changes. In CDMA networks, handoffs occur both when the phone is engaged in active communication and when the phone is in the idle state. As methods for wireless phone position determination advance, wireless phones may integrate position determination algorithms such as GPS that will provide almost exact subscriber location. Since wireless networks encompass vast areas an advertiser 210 may choose position targeted mode to limit advertisements to consumers nearer to the advertiser's place of business. As subscribers 250 move into targeted cells they would be exposed to the advertisement.

The second type of service sold to extended media clients 210 is market data service. Market data services allow the extended media clients 210 to gather information from wireless phone subscribers 250. Unlike the majority of the advertising modes, market data services require a subscriber 250 to actively interface with the interactive media sent. To offset the increased subscriber interaction a service provider 230 could offer a heightened discount value for interactive media completed by the subscriber. Thus a subscriber 250 that responds to interactive market data media would pay a lower monthly bill than a subscriber 250 that merely accepts advertisements. Just as in the case of advertisements, there are multiple modes that the service provider 230 and extended media client 210 can choose to distribute interactive market data media.

In passive polling mode the graphical or text poll is sent to the subscriber 250 and saved in buffer memory within the phone. The subscriber 250 is then able to use the phone display in conjunction with the phone keypad to scroll through the subjects of multiple polls saved within the buffer memory. The subscriber 250 can choose to answer specific polls or clear them from the buffer memory. Once a subscriber 250 completes a poll they would send the completed poll back to the service provider 230. This can easily be accomplished with a final question in the poll that asks if the subscriber 250 has completed the poll and wishes to submit the results. If the subscriber 250 answers the question affirmatively the phone would automatically start a routine to dial a predetermined number and transmit the poll results.

In push polling a subscriber 250 is sent an audio or text poll upon call origination or call termination. Push polling can be further narrowed in scope by limiting polls by position or subscriber demographics.

Electronic coupon offers can be transmitted to subscribers 250. The  
5 electronic coupons would be distributed as text based messages that would be saved in a buffer memory within the wireless phone. The subscriber 250 could redeem the coupon at the retailer by displaying the serial number of the transmitted electronic coupon or through a download of the electronic coupon at the retailer. Alternatively, the electronic coupon offer could direct the  
10 subscriber 250 to a direct phone merchant where the coupon could be redeemed using the serial number of the coupon. The service provider 230 would accumulate the information regarding the subscriber's consumption patterns and utilize it as part of the subscriber's user profile.

To summarize operation of the system, extended media clients 210 work  
15 with their advertising and marketing agencies 220 to develop extended media that is optimized for distribution through a wireless network. The extended media clients 210 through their advertising and marketing agencies 220 transfer the extended media to the service provider's system 230. The transfer may be accomplished through a dedicated communication link or may be  
20 accomplished over the internet using secure protocol. Once the extended media is on the service provider's system 230 the extended media is reviewed for content and formatted for use by the service provider network 240. The service provider's system 230 waits for a predetermined event to occur prior to broadcasting the extended media message. The predetermined event  
25 triggering broadcast can be defined as falling within one of various modes, including time based passive mode, demographically targeted mode, push mode, and position targeted mode. The extended media is broadcast to the appropriate active phones 140 once the predetermined event occurs. The subscribers 250 are then exposed to the extended media through their phones  
30 140. In the case of interactive media, the subscriber 250 has the option of completing the poll or questionnaire and electronically returning it to the service provider's system 230. The process of electronically returning a poll is performed using a reverse link from the phone 140 to the service provider network 240. The service provider's system 230 then extracts and compiles the  
35 replies.

Referring to FIG. 3 the present invention is comprised of a set of computer servers that provide the interface between the extended media clients the CCLN, and at least one subscriber wireless phone. The extended media portion of the system 310 resides in several computer servers. These different

computer servers are described as separate computers for clarity in description. Any or all of the servers can be combined into individual computers of sufficient processing ability.

5 The Customer Interface Server 312 is used as the bridge between the extended media clients and the service provider. This server could be linked to the extended media clients through the internet or could be accessed using a phone connection. The extended media clients connect to this server to transfer the advertising or interactive media that is to be distributed to the user. Access to the server would be via password protected accounts. If the server is  
10 internet web accessible, the upload to the server would be accomplished using secure communications such as Secure Sockets Layer (SSL). The extended media client would upload to the server the audio message or software code needed to present text/graphical messages. The format of the software uploaded would correspond to the requirements of the application within the  
15 wireless phone that the software is expected to run under. In the case of limited browser type applications the software loaded would be a form of Hypertext Markup Language (HTML).

The Customer Interface Server 310 is connected within the system to the Administrative Server 314. While the extended media is on the Administrative  
20 Server 314 the content is reviewed and if required, further formatted. Billing information is also compiled on the Administrative Server 314. In addition to billing of the extended media client, the Administrative Server 314 would calculate the billing discount that the subscribers accumulate. The subscriber billing discount is based on the subscriber's exposure to, and participation in,  
25 extended media from statistics accumulated on the Media Server 316.

The Media Server 316 receives the fully formatted extended media from the Administrative Server 314. The Media Server 316 is the host for the audio messages, text messages, and interactive applications. The Media Server 316 accumulates the subscriber responses to polls and questionnaires, including the  
30 subscriber user profiles. The Media Server 316 also makes the decisions as to which particular advertisement or interactive message is sent. The Media Server 316 tracks the sequential or random message selection and also determines the demographic match between the extended media target and the user profiles. The Media Server 316 also factors in subscriber location if  
35 required.

Requests for initiation of extended media messages and subscriber location are received from the CCLN Interface Server 318. The CCLN Interface Server 318 bridges the extended media messages archived in the Media Server 316 to the CCLN. The CCLN Interface Server 318 monitors the BSC within the

CCLN for information such as subscriber location, call origination, and call termination. When one of these threshold events occur the CCLN Interface Server 318 initiates an extended media message by receiving the appropriate message from the Media Server 316 and transferring it to the CCLN for  
5 transmission to the subscriber. In addition to subscriber initiated events other events such as time of day or push advertisement availability can be used to initiate the transmission of extended media messages to the subscriber.

The CCLN 322 performs the actual transmission of the extended media message to the subscriber. Where passive messages are used the CCLN 322 can  
10 transmit the messages in the same manner in which paging messages are transmitted. However, passive messages would not activate the user alert on the phone. Where messages are sent in response to call origination, the system does not complete the call connection until the message has been transmitted to the subscriber. Alternatively, the message can continue to be transmitted to the  
15 user in a continuous loop while the ringer is sounding. The ringer tone would be attenuated to allow the extended media message to be the dominant audio message. As in an ordinary call origination, the ringer tone as well as the extended media message would be interrupted once the called party answers the call. Where messages are sent in response to call termination, the CCLN  
20 322 will disconnect the call but will not break the communication link with the subscriber until the extended media message is transmitted. When passive polling mode is used to distribute interactive media the CCLN 322 receives any subscriber replies and routes them to the CCLN Interface Server 318 to be accumulated in the Media Server.

The subscriber's phone 330 represents the final piece of hardware in the system. Digital phones, such as CDMA wireless phones, are able to handle voice as well as data transmission. The phone 330 is required to have a display to receive visual messages. Preferably the phone 330 has a bitmapped display such that graphics as well as text can be displayed. The phone 330 is required  
30 to have buffer memory 334 where passive advertisements and polls can be stored. A greater capacity of buffer memory 334 allows storage of larger and more complex messages. The phone 330 must also incorporate some form of embedded program that the interactive media will run under. Perhaps the most relevant form of embedded phone software is a minimal browser  
35 application 336. Limited functionality browsers already exist and programming languages for software running under the browser have already been established. The browser application runs under the phone operating system 332. The browser application 336 automatically starts when a subscriber

scrolls through the contents of the buffer memory 334 and chooses an advertisement or interactive media to view.

The previous description of the preferred embodiments is provided to enable any person skilled in the art to make or use the present invention. The  
5 various modifications to these embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without the use of the inventive faculty. Thus, the present invention is not intended to be limited to the embodiments shown herein but is to be accorded the widest scope consistent with the principles and novel  
10 features disclosed herein.

**What is claimed is:**



## CLAIMS

1. A system for delivering extended media messages to wireless  
2 phone service subscribers comprising:
  - 3 a wireless phone network for interfacing a Public Switched
  - 4 Telephone Network (PSTN) to wireless phones;
  - 5 a minimum of one active wireless phone capable of
  - 6 communication with the wireless phone network; and
  - 7 a computer server for monitoring presence of the minimum of
  - 8 one active wireless phones within the wireless phone network and for storage
  - 9 of an extended media message; wherein
  - 10 the computer server transfers the extended media message to the
  - 11 wireless land network for transmission to the minimum of one active wireless
  - 12 phone.
2. The system of claim 1 wherein the computer server comprises:
  - 3 a customer interface for receiving extended media messages
  - 4 transferred by extended media clients;
  - 5 an administrative server for transferring the extended media
  - 6 message from the customer interface server to the administrative server for
  - 7 review and formatting and wherein billing and extended media statistics are
  - 8 compiled on the administrative server;
  - 9 a media server for hosting the extended media message and for
  - 10 gathering and compiling information from replies to extended media messages;
  - 11 and
  - 12 a wireless phone network interface server for monitoring wireless
  - 13 phone activity within the wireless phone network and for transferring the
  - 14 extended media message to the wireless phone network for transmission to
  - 15 active wireless phones.
3. The system of claim 2 wherein the extended media message  
2 comprises audio messages.
4. The system of claim 3 wherein the extended media message  
2 further comprises textual messages to be shown on a wireless phone display.
5. The system of claim 4 wherein the textual messages comprise  
2 interactive electronic media that a wireless phone subscriber interacts with and

4     where said subscriber interactions are transmitted back to the wireless phone  
network.

2     6.     The system of claim 1 wherein the extended media message  
comprises audio messages.

2     7.     The system of claim 6 wherein the extended media message  
further comprises textual messages to be shown on a wireless phone display.

2     8.     The system of claim 7 wherein the textual messages comprise  
interactive electronic media that a wireless phone subscriber interacts with and  
where said subscriber interactions are transmitted back to the wireless phone  
4     network.

2     9.     The system of claim 1 wherein the extended media message  
transmitted to the active wireless phones is stored in a buffer memory within  
the wireless phone.

2     10.    The system of claim 9 wherein the buffer memory stores multiple  
transmissions of extended media messages.

2     11.    The system of claim 1 wherein the extended media message  
transmitted to the wireless phone is a software routine which runs under an  
application within the wireless phone.

2     12.    The system of claim 1 wherein the extended media message is  
transmitted to the active wireless phones in response to a predetermined event.

2     13.    The system of claim 12 wherein the predetermined event is a call  
origination attempt by the active wireless phone.

2     14.    The system of claim 12 wherein the predetermined event is a  
specific time of day.

2     15.    The system of claim 12 wherein the predetermined event is  
registration by the active wireless phone within any one of a predetermined  
number of cell sites.

16. The system of claim 12 wherein the predetermined event is a  
2 match between client targeted demographics and demographic information  
previously provided by the subscriber in a user profile.

17. The system of claim 1 wherein an extended media client transfers  
2 the extended media message to the computer server using an internet link.

18. A method for delivering extended media messages to wireless  
2 phone service subscribers and for gathering information from wireless phone  
service subscribers comprising:

4 transferring the extended media message from an extended media  
client to a computer server which monitors the presence of at least one active  
6 wireless phone within a wireless phone network; and

transmitting the extended media message to a minimum of  
8 one active wireless phone in response to a predetermined event.

19. The method of claim 18 further comprising the steps:  
2 receiving electronic responses transmitted from any of the minimum of  
one active wireless phones to the wireless phone network in response to the  
4 extended media message; and  
compiling the electronic responses in the computer server.

20. The method of claim 18 wherein the predetermined event is call  
2 origination by any of the minimum of one active wireless phones.

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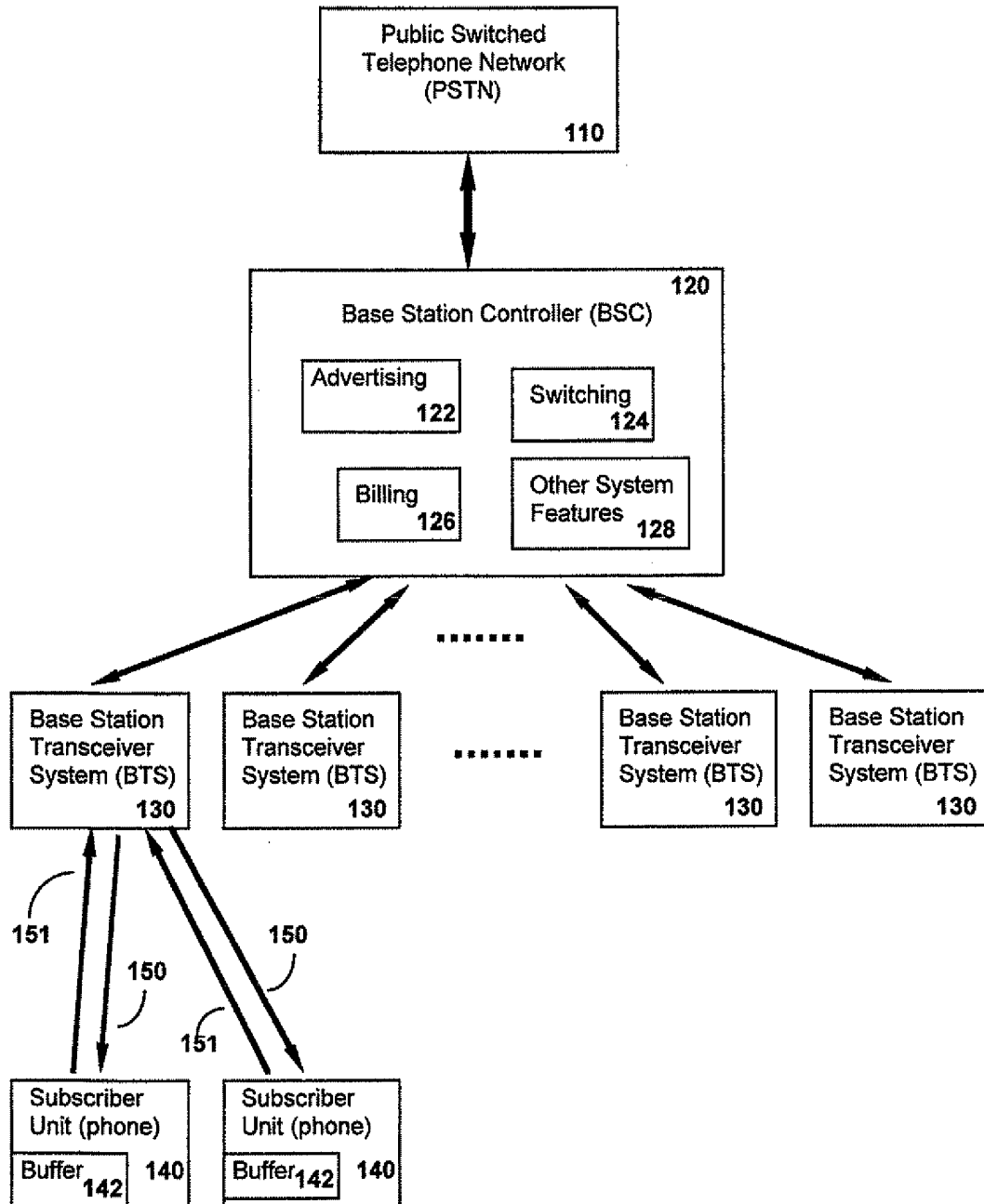


FIG. 1

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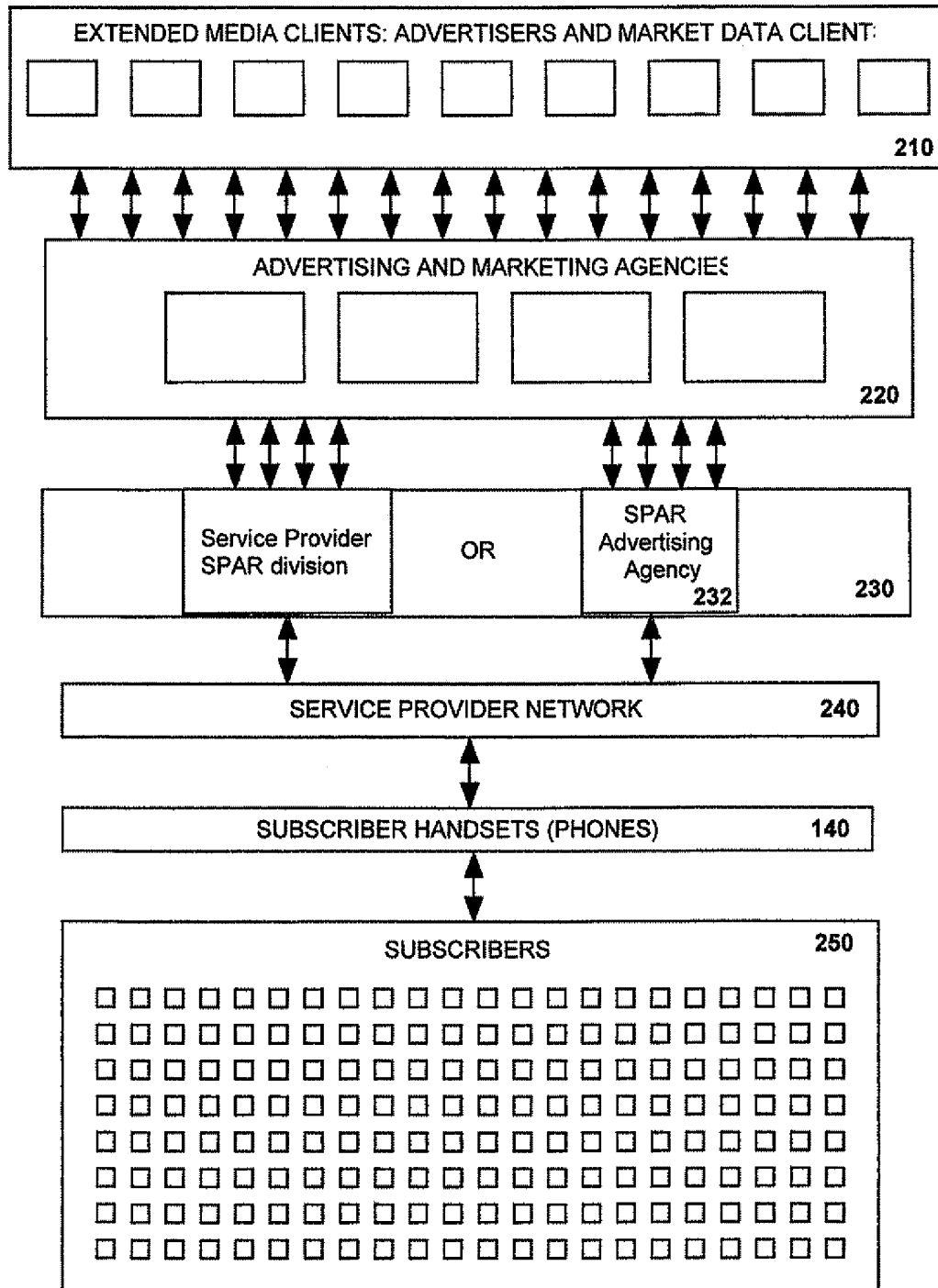


FIG. 2

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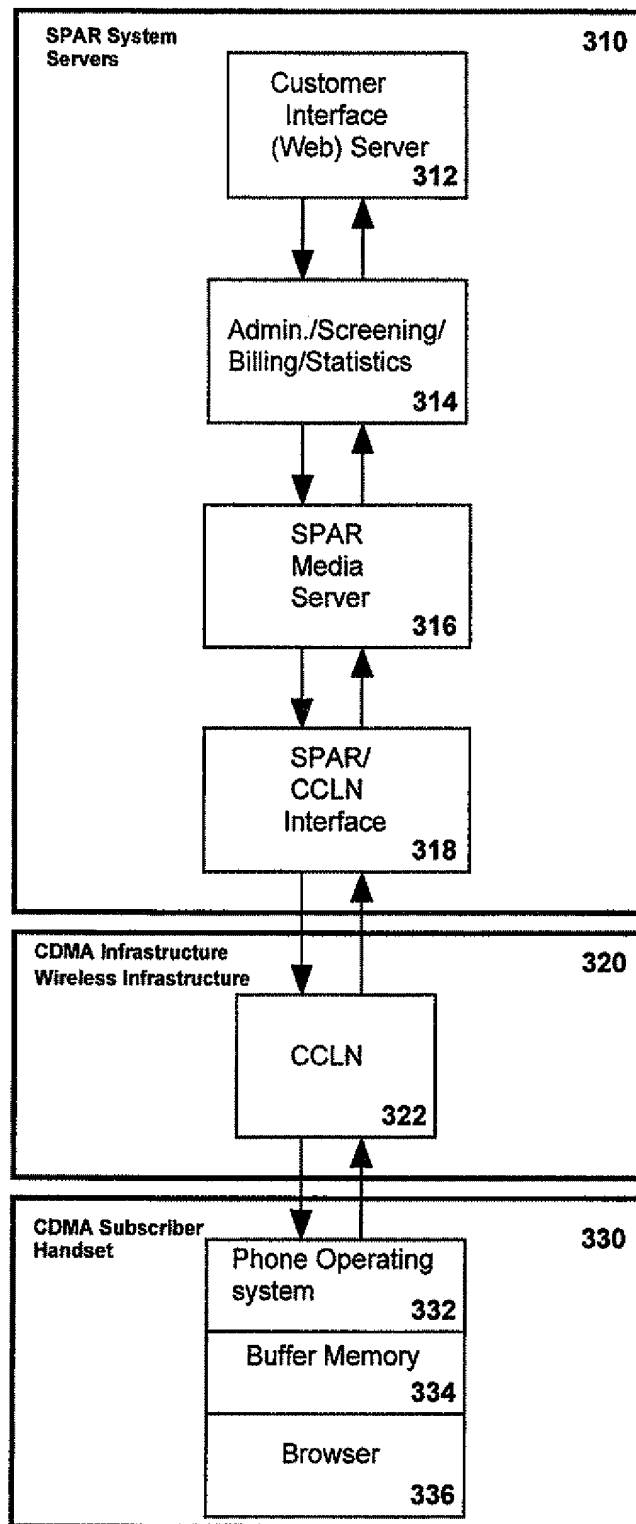


FIG. 3

# INTERNATIONAL SEARCH REPORT

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 H04Q7/22 H04M3/487		Int. .tional Application No <b>PCT/US 00/09793</b>
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 H04Q H04L H04M		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) <b>EPO-Internal, WPI Data, PAJ, INSPEC</b>		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 852 775 A (HIDARY MURRAY) 22 December 1998 (1998-12-22) column 4, line 37 - line 47; figures 1,2	1,6-20
Y		2-5
X	W0 98 19438 A (ERICSSON TELEFON AB L M) 7 May 1998 (1998-05-07) abstract; figure 1	1,6-20
Y	page 5, line 19 - line 30 page 9, line 3 - line 16	2-5
<div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/> Further documents are listed in the continuation of box C.</span> <span><input checked="" type="checkbox"/> Patent family members are listed in annex.</span> </div>		
* Special categories of cited documents : <div style="display: flex;"> <div style="flex: 1;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&amp;" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search <div style="text-align: center; font-weight: bold;">17 August 2000</div>		Date of mailing of the international search report <div style="text-align: center; font-weight: bold;">23/08/2000</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer <div style="text-align: center; font-weight: bold;">M. García</div>

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Information on patent family members

International Application No

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